UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MISSOURI
EASTERN DIVISION

DEKALB GENETICS CORPORATION,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	Case No. 4:06CV01191 ERW
	)	
SYNGENTA SEEDS, INC., et al.,	)	
	)	
Defendants.	)	

MEMORANDUM AND ORDER

This matter comes before the Court on the matter of construing disputed claims in DeKalb's 5,554,798 Patent ('798 Patent). After extensive and well-presented briefing before the Court, a proceeding in the nature of a *Markman* hearing was conducted on August 15, 2007, where arguments were heard concerning the respective Parties' proposed construction of terms in Claims 1-6 of the '798 Patent.

I. Background

At issue in the case is United States Patent '798, which patents the invention of a fertile transgenic *Zea mays*, or corn, plant. The invention accomplishes this by inserting foreign DNA into a plant, through the process of microprojectile bombardment. As recited in the '798 patent history, the key to the invention was obtaining a fertile plant, which could pass the mutated DNA onto the next generation through conventional breeding programs. It is unnecessary, for the purposes of this opinion, to detail the process by which fertile transgenic corn plants are made, as the patent is focused on the resulting plants, their seeds, and progeny.

This process was eventually used to create genetically engineered corn with a gene encoding a protein known as EPSP synthase, which provides resistence to a herbicide called glyphosate. Glyphosate herbicide is sold by DeKalb's parent company, Monsanto, under the trademark RoundUp®. Monsanto markets their genetically engineered corn product under the name RoundUp Ready®. Syngenta sells a similar product known as GA21 corn, which is also resistant to glyphosate.

The inventors of the '798 patent were Lundquist and Walters, employed by Plant Science Research, Inc. (PSRI) which was owned by Biotechnica International, Inc. DeKalb acquired PSRI in 1991. The '798 Patent is dated September 10, 1996, however, the patent resulted from a series of patent applications which claim priority back to an application filed on January 22, 1990, by the same named inventors. The '798 Patent has six claims, which are stated as follows:

> 1. A fertile transgenic *Zea mays* plant containing an isolated heterologous DNA construct encoding EPSP synthase wherein said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said resistance is not present in a *Zea mays* plant not containing said DNA construct, and wherein said DNA construct is transmitted through a complete normal sexual cycle of the transgenic plant to the progeny generation.
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> 2. The transgenic plant of Claim 1 wherein the heterologous DNA construct comprises a promoter.
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> 3. A seed produced by the transgenic plant of Claim 1 which comprises said heterologous DNA construct.
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> 4. A progeny transgenic *Zea mays* plant derived from the transgenic plant of Claim 1 wherein said progeny plant expresses said heterologous DNA construct so that the progeny plant exhibits said glyphosate tolerance.
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> 5. A seed derived from the progeny plant of Claim 4 wherein said seed comprises said heterologous DNA construct.
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> 6. The transgenic plant of Claim 1 wherein the plant is obtainable by a process

comprising the steps of:

(i) bombarding intact regenerable *Zea mays* cells with microprojectiles coated with said heterologous DNA construct;
(ii) identifying or selecting a population of transformed cells; and
(iii) regenerating a fertile transgenic plant therefrom.

United States Patent No. 5,554,798. Within the above quoted claims, the parties dispute the meaning of the following terms:

1. "a fertile *Zea mays* plant" (Claim 1), "progeny" (Claims 1 and 4) and "seed" (Claims 3 and 5);

2. "heterologous DNA construct encoding EPSP synthase" (Claim 1) and "promoter" (Claim 2);

3. "EPSP synthase" (Claim 1); and

4. "said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said resistance is not present in a *Zea mays* plant not containing said DNA construct" (Claim 1).

II. PROCEDURAL HISTORY

Plaintiff DeKalb Genetics Corporation ("DeKalb") filed suit against Defendants Syngenta Seeds, Inc., Syngenta Biotechnology, Inc., Golden Harvest Seeds, Inc., Garwood Seed Co., Golden Seed Company, L.L.C., Sommer Bros. Seed Company, Throp Seed Co., JC Robinson Seeds, Inc., and Garst Seed Company ("Syngenta") on August 9, 2006. Defendants then moved this Court, on October 20, 2006, to transfer the case to the District of Delaware. The Court denied Defendants' original Motion to Transfer, and also their subsequent motion to sever and transfer. On August 17, 2007, this Court dismissed all claims against Defendants Syngenta

Biotechnology, Inc., Garwood Seed Co., Golden Seed Company, L.L.C., and Thorp Seed Co., for lack of personal jurisdiction. All claims remained pending against the surviving Defendants.

In accordance with the case management order, the Court held an in-court *Markman* hearing to determine the appropriate construction of the claims. *Markman v. Westview Instruments Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995). That matter is now before the Court. Also pending before the Court are: Plaintiff's Motion to Bifurcate Equitable Issues of Unclean Hands and Inequitable Conduct from Liability, to be heard by a jury, and Defendants' Contingent Motion to Bifurcate the Issues of Willful Infringement and Damages; Syngenta's Motion to Compel Response to Interrogatories, DeKalb's Motion to Compel Discovery; and Defendants' Motion to Preclude DeKalb's Claim for Infringement or alternatively Extend the Case Management Order. The Court will only address the claim construction issue in this order.

III. LEGAL STANDARD

In an action for patent infringement, the analysis entails two steps: "The first step is determining the meaning and scope of the patent claims asserted to be infringed" and "[t]he second step is comparing the properly construed claims to the device accused of infringement." *Markman*, 52 F.3d at 976. The Federal Circuit, in *Markman*, in addressing the first step of the analysis, held that "the interpretation and construction of patent claims, which define the scope of the patentee's rights under the patent, is a matter of law exclusively for the court." 52 F.3d at 970-71.

The Parties rightfully cite frequently in their briefs and arguments to the case of *Phillips v. AWH Corporation*, 415 F.3d 1303 (Fed. Cir. 2005), as the primary authority for trial courts to follow in construing disputed patent claims. The Court, accordingly, accepts the Parties' joint

invitation to rely heavily on that case in construing the disputed terms in this case and will cite generously, in this opinion, from that important case.

The first and second paragraphs of 35 U.S.C. § 112 frame the issue of claim interpretation. The first paragraph states that the specification shall contain a written description of the invention, and the manner and process of making and using it in such full, clear concise, and exact terms as to enable any person skilled in the art to which it pertains; and the second paragraph provides that the specification shall include with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. 35 U.S.C. § 112;[1] *See also Phillips*, 415 F.3d at 1311-12. In *Phillips*, the Federal

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[1]35 U.S.C. § 112 states in full:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out its invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject which the applicant regards as his invention.
>
> A claim may be written in independent or, if the nature of the case admits, in dependant or multiple dependant form.
>
> Subject to the following paragraph, a claim in dependant form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependant form shall be construed to incorporate by reference all the limitations of the claim to which it refers.
>
> A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of the particular claim in relation to which

Circuit outlined the proper approach that a trial court is to take in interpreting the claims at issue, and the role that intrinsic and extrinsic evidence is to play in that process. *Id.*

The Federal Circuit began with a reiteration of the bedrock principle of patent law, that "'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips*, 415 F.3d at 1312 (citing *Innova,* 381 F.3d at 1115); *see also Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("we look to the words of the claims themselves ... to define the scope of the patented invention"); *Markman*, 52 F.3d at 980 ("The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims."). The Federal Circuit recited that because the patentee is required to precisely define his invention, it is "unjust to the public as well as an invasion of the law, to construe it in a manner different from the plain import of its terms." *Phillips*, 415 F.3d at 1312 (citing *White v. Dunbar,* 119 U.S. 47, 52 (1986)). The Federal Circuit also referenced *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116, (1895) ("if we once begin to include elements not mentioned in the claim, in order to limit such claim ..., we should never know where to stop") and *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 339, (1961) ("the claims made in the patent are the sole measure of the grant.")).

The Federal Circuit stressed, words of the claim "are generally given their ordinary and

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it is being considered.

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112.

customary meaning." *Phillips*, 413 F.3d at 1313 (citing *Vitronics*, 90 F.3d at1582) (other citations omitted). "We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the present application." *Id.* at 1313 (citing *Innova*, 381 F.3d at 1116). The Federal Circuit observed that it is well understood that inventors are typically persons skilled in the field of the invention. *Phillips*, 413 F.3d at 1313. A "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed claim appears, but in the context of the entire patent, including the specification." *Id.* The ordinary meaning of the term must be looked at "in the context of the written description and the prosecution history." *Id.* (citing *Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313,1319 (Fed. Cir. 2005)); *See also V-Formation, Inc. v. Benetton Group SpA*, 401 F. 3d.1307, 1310 (Fed Cir. 2005) (The intrinsic record "usually provides the technological and temporal context to enable the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention."). The Federal Circuit explained the importance of the language of the claims and the context of surrounding words, by noting, "[q]uite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms." *Phillips*, 415 F.3d at 1314 (citing *Vitronics*, 90 F.3d at 1582); *see also ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed.Cir.2003) ("the context of the surrounding words of the claim also must be considered in determining the ordinary and customary meaning of those terms"). Furthermore, "[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term. Because claim terms are normally

used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims." *Phillips*, 413 F.3d at 1314 (citing *Vitronics*, 90 F.3d at 1582); *see also Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed.Cir.2001). In emphasizing the importance of the specification, the Court reaffirmed the tenet:

> The claims, of course, do not stand alone. Rather, they are part of "a fully integrated written instrument," *Markman*, 52 F.3d at 978, consisting principally of a specification that concludes with the claims. For that reason, claims "must be read in view of the specification, of which they are a part." *Id.* at 979. As we stated in *Vitronics*, the specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." 90 F.3d at 1582.
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> This court and its predecessors have long emphasized the importance of the specification in claim construction. In *Autogiro Co. of America v. United States*, 181 Ct.Cl. 55, 384 F.2d 391, 397-98 (1967), the Court of Claims characterized the specification as "a concordance for the claims," based on the statutory requirement that the specification "describe the manner and process of making and using" the patented invention. The Court of Customs and Patent Appeals made a similar point. *See In re Fout*, 675 F.2d 297, 300 (CCPA 1982) ("Claims must always be read in light of the specification.*")*.

Phillips, 415 F.3d at 1315.

The requirement to give the specification its due weight in claim construction is obvious from the plain language in *Phillips*, however, the specification is to be "informed, as needed, by the prosecution history." *Phillips*, 415 F.3d at 1315 (citing *Multiform Desiccants*, 133 F.3d at 1478); *see also Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed.Cir.2004) ("In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention."); *see also, e.g., Kinik Co. v. Int'l Trade Comm'n*, 362 F.3d 1359, 1365 (Fed.Cir.2004) ("The words of patent claims have the meaning and scope with which they are used in the specification and the

prosecution history."); *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1315 (Fed.Cir.2003) ("[T]he best indicator of claim meaning is its usage in context as understood by one of skill in the art at the time of invention."); *See also Hogg v. Emerson*, 47 U.S. (6 How.) 437, 482, (1848) (the specification is a "component part of the patent" and "is as much to be considered with the [letters patent] in construing them, as any paper referred to in a deed or other contract" (addition in original)); *Bates v. Coe*, 98 U.S. 31, 38 (1878) ("in case of doubt or ambiguity it is proper in all cases to refer back to the descriptive portions of the specification to aid in solving the doubt or in ascertaining the true intent and meaning of the language employed in the claims"); *White v. Dunbar*, 119 U.S. 47, 51 (1886) (resorting to the specification is appropriate "for the purpose of better understanding the meaning of the claim"); *Schriber-Schroth Co. v. Cleveland Trust Co.*, 311 U.S. 211, 217 (1940) ("The claims of a patent are always to be read or interpreted in light of its specifications."); *United States v. Adams*, 383 U.S. 39, 49 (1966) ("[I]t is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention.").

> The importance of the specification in claim construction derives from its statutory role. The close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in "full, clear, concise, and exact terms." 35 U.S.C. § 112, para. 1; *see Netword, LLC v. Centraal Corp.*, 242 F.3d 1347, 1352 (Fed.Cir.2001) ("The claims are directed to the invention that is described in the specification; they do not have meaning removed from the context from which they arose."); *see also Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 389, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) ("[A claim] term can be defined only in a way that comports with the instrument as a whole."). In light of the statutory directive that the inventor provide a "full" and "exact" description of the claimed invention, the specification necessarily informs the proper construction of the claims. *See Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1371 (Fed.Cir.2003) ("A fundamental rule of claim construction is that terms in a patent document are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be

consistent with the specification, of which they are a part.") (citations omitted). In *Renishaw*, this court summarized that point succinctly:

> Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction. 158 F.3d at 1250 (citations omitted).

Phillips, 415 F.3d at 1315-16 (alterations in original).

In addition to consulting the specification, the Federal Circuit made it very clear in *Phillips*: "that a court 'should also consider the patent's prosecution history, if it is in evidence.'" *Id.* at (quoting *Markman*, 52 F.3d at 980); *see also Graham v. John Deere Co.*, 383 U.S. 1, 33, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966) ("[A]n invention is construed not only in the light of the claims, but also with reference to the file wrapper or prosecution history in the Patent Office."). The prosecution history is part of the intrinsic record and consists of: "the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent." *Phillips*, 415 F.3d at 1317 (citing *Autogiro*, 384 F.2d at 399).

> Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent. *See Lemelson v. Gen. Mills, Inc.*, 968 F.2d 1202, 1206 (Fed.Cir.1992). Furthermore, like the specification, the prosecution history was created by the patentee in attempting to explain and obtain the patent. Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes. *See Inverness Med. Switz. GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1380-82 (Fed.Cir.2002) (the ambiguity of the prosecution history made it less relevant to claim construction); *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1580 (Fed.Cir.1996) (the ambiguity of the prosecution history made it "unhelpful as an interpretive resource" for claim construction). Nonetheless, the prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course

of prosecution, making the claim scope narrower than it would otherwise be. . .. *Phillips*, 415 F.3d at 1317.

The Federal Circuit next addressed the role of extrinsic evidence in a trial court's claim construction function. Extrinsic evidence in the form of expert testimony can be useful to provide background on the technology at issue, to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field. However, "conclusory, unsupported assertions by experts as to the definition of a claim term are not useful to a court. Similarly, a court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.'" *Phillips*, 415 F.3d at 1318 (citing *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709,716 (Fed. Cir. 1998).

The Court further cautioned that extrinsic evidence is generally less reliable than the patent and its prosecution history in determining how to read claim terms, because,

> [f]irst, e]xtrinsic evidence . . . does not have the specification's virtue of being created at the time of patent prosecution for the purpose of explaining the patent's scope and meaning. Second, while claims are construed as they would be understood by a hypothetical person of skill in the art, extrinsic publications may not be written by or for skilled artisans and therefore may not reflect understanding of a skilled artisan in the field of the patent. Third, extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence. The effect of that bias can be exacerbated if the expert's opinion is not one of skill in the relevant art or if the expert's opinion is offered in a form that is not subject to cross-examination. Fourth, there is a virtually unbounded universe of potential extrinsic evidence of some marginal relevance that could be brought to bear on any claim construction question . . .. Finally, undue reliance on extrinsic evidence poses the risk that it will be used

> to change the meaning of claims in derogation of the 'indisputable public records consisting of the claims, the specification and the prosecution history,' thereby undermining the public notice function of patents.

Phillips, 413 F.3d at 1318-19 (internal citations omitted).

The Federal Circuit in *Phillips* next cautioned against the improper reliance on dictionaries, encyclopedias and treatises. The Federal Circuit constricted its reliance on such extrinsic evidence from its earlier cases which relied to a lesser degree on the specification, and more heavily on these types of extrinsic references. *Id.* at 1321. "The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent. Yet heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." *Id.* at 1321. The Federal Circuit is concerned that the use of the dictionary definition would be unfair to both the patent holder and the public, who rely upon the description in the patent in determining its scope. *See Merill v. Yeomans*, 94 U.S. 568, 573-74 (1876) (The Supreme Court held that "[i]t seems to us that nothing can be more just and fair, both to the patentee and the public, than that the former should understand, and correctly describe, just what he has invented, and for what he claims a patent.").

Finally, the Federal Circuit in *Phillips* offered guidance in recognizing the difficulty between relying upon the specification for interpreting the patent, and yet not imposing limitations from the specification into the claims themselves. *Phillips*, 415 F.3d at 1323.

> We also acknowledge that the purpose underlying the *Texas Digital* line of cases-to avoid the danger of reading limitations from the specification into the claim-is sound. Moreover, we recognize that the distinction between using the specification to

interpret the meaning of a claim and importing limitations from the specification into the claim can be a difficult one to apply in practice. *See Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1186-87 (Fed.Cir.1998) ("there is sometimes a fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification"). However, the line between construing terms and importing limitations can be discerned with reasonable certainty and predictability if the court's focus remains on understanding how a person of ordinary skill in the art would understand the claim terms. For instance, although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. *See, e.g., Nazomi Communications, Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1369 (Fed.Cir.2005) (claims may embrace "different subject matter than is illustrated in the specific embodiments in the specification"); *Liebel-Flarsheim*, 358 F.3d at 906-08; *Teleflex*, 299 F.3d at 1327; *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed.Cir.1985). In particular, we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment. *Gemstar-TV Guide*, 383 F.3d at 1366. That is not just because section 112 of the Patent Act requires that the claims themselves set forth the limits of the patent grant, but also because persons of ordinary skill in the art rarely would confine their definitions of terms to the exact representations depicted in the embodiments.

To avoid importing limitations from the specification into the claims, it is important to keep in mind that the purposes of the specification are to teach and enable those of skill in the art to make and use the invention and to provide a best mode for doing so. *See Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533 (Fed.Cir.1987). One of the best ways to teach a person of ordinary skill in the art how to make and use the invention is to provide an example of how to practice the invention in a particular case. Much of the time, upon reading the specification in that context, it will become clear whether the patentee is setting out specific examples of the invention to accomplish those goals, or whether the patentee instead intends for the claims and the embodiments in the specification to be strictly coextensive. *See SciMed Life Sys.*, 242 F.3d at 1341. The manner in which the patentee uses a term within the specification and claims usually will make the distinction apparent. *See Snow v. Lake Shore & M.S. Ry. Co.*, 121 U.S. 617, 630, 7 S.Ct. 1343, 30 L.Ed. 1004 (1887) (it was clear from the specification that there was "nothing in the context to indicate that the patentee contemplated any alternative" embodiment to the one presented).

In the end, there will still remain some cases in which it will be hard to determine whether a person of skill in the art would understand the embodiments to define the outer limits of the claim term or merely to be exemplary in nature. While that task may present difficulties in some cases, we nonetheless believe that attempting to resolve that problem in the context of the particular patent is likely to capture the

> scope of the actual invention more accurately than either strictly limiting the scope of the claims to the embodiments disclosed in the specification or divorcing the claim language from the specification.
>
> In *Vitronics*, this court grappled with the same problem and set forth guidelines for reaching the correct claim construction and not imposing improper limitations on claims. 90 F.3d at 1582. The underlying goal of our decision in Vitronics was to increase the likelihood that a court will comprehend how a person of ordinary skill in the art would understand the claim terms. *See id.* at 1584. In that process, we recognized that there is no magic formula or catechism for conducting claim construction. Nor is the court barred from considering any particular sources or required to analyze sources in any specific sequence, as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence. *See id. at 1583-84; Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1367 (Fed.Cir.2003).

Phillips 415 F.3d at 1323-24.

IV. DISCUSSION

The Court's obligation in this claim construction assignment is to interpret the meaning of the claim terms, in light of the language of the claims, the specification, the prosecution history, and if necessary extrinsic evidence. The Parties' presented to this Court a discrete number of disputed terms, that are found within the six claims of the patent. The Court will recite the arguments presented by each party regarding each term at issue, before reaching a determination regarding the terms meanings. The Court is cognizant of the requirement that "[u]ltimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The Construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction." *Phillips*, 415 F.3d at 1316. The terms at issue include: "a fertile transgenic *Zea mays* plant," "progeny," and "seed", which are found in Claims 1, 3, 4 and 5; "heterologous DNA construct encoding EPSP synthase" and "promoter,"

found in Claims 1, and 2; "EPSP synthase" found in Claim 1; and "resistance to normally toxic levels of glyphosate," found in Claim 1. In reaching a determination on the construction of the terms at issue, the Court is cognizant of the "fine line between reading a claim in light of the specification, and reading a limitation into the claim from the specification." *Comark Communications Inc.*, 156 F.3d at 1186-1187.

While this Court is not making claim construction conclusions relying on findings of other courts, since the Parties advance deeply divided opinions as to the weight, if any, to be assigned to those findings, and because, such a substantial part of the Parties' arguments are stated in respective briefs, the Court will observe what other courts have done on the same or similar issues. There are a number of prior court decisions which involve the patent at issue, or other patents with similar claims involving these or other associated parties. The first case discussed by the Parties is a decision by the Middle District of North Carolina between Rhone-Poulenc Agro, S.A. ("RPA") and Monsanto; the second case is a Northern District of Illinois case between DeKalb and Ciba Geigy Corporation ("Ciba Geigy") and others; and the third case is a Delaware decision between Monsanto Company and Syngenta Seeds, Incorporated and others.

The first case discussed is the North Carolina case. In that case, the district court construed the terms "resistance to normally toxic levels of glyphosate." *See Pl.'s Opening Claim Construction Brief*, ex. 3. RPA filed suit in North Carolina to add the names of one or more RPA scientists as co-inventors of U.S. Patent 6,040,497 ("Patent '497") and Patent '798, the patent at issue in the case at bar. The Court concluded that for Patent '798, none of the requested inventors should be added to the patent. In order to reach this conclusion, the North Carolina court was required to determine the scope of the invention, which in turn required the court to

define the terms "resistance to normally toxic levels of glyphosate." The North Carolina court concluded that "'resistance' should be accorded its broader meaning, i.e. that a transgenic plant is 'herbicide resistant' even if it is severely harmed by herbicides, so long as it is less harmed than the non-transgenic version of the plant would be at the same applied level of glyphosate." *Pl.'s Opening Claim Construction Brief*, ex. 3, p. 44.

The second court opinion referenced by the parties is the Northern District of Illinois case, in which DeKalb brought a patent infringement action against Ciba Geigy. The Northern District of Illinois case did not involve the '798 patent, but rather involved two related patents, United States Patents 5,484,956 and 5,538,880. The Northern District of Illinois court referred the case to a special master to determine the meaning of any disputed terms in the allegedly infringed claim. *Pls. Opening Claim Construction Brief*, ex. 4, Court's Order. The special master, in a thorough report and recommendation defined the word "progeny," which was accepted by the district court in its order. *Id.* The special master concluded that "the term 'progeny' in the claims of the patents in suit, . . . means the R1 and all succeeding generations." *Id.* at 43. Significantly, as emphasized by DeKalb in this case, the special master stated that "the logical, grammatical construction of the claim language itself is that . . . 'progeny' can refer to any generation but R0, and is certainly not limited to R1." *Id.* at 39.

The last court decision referenced by the Parties is the Delaware case. In that case Monsanto sued Syngenta, and others, alleging infringement of United States Patent No. 4,940,835 ("patent '835"). While the case involved the same allegedly infringing product as this case, GA21 corn, it did not involve the '798 patent. In the Delaware case, the district court concluded that "for purposes of appeal, and consistent with the above conclusions of law, the

court adopts the claim construction proposed by defendants in connection with the asserted claims of the '880 and '863 patents." *Pl.'s Opening Claim Construction Brief*, ex. 11, 16. This case was appealed to the Federal Circuit, which upheld the district court's ruling on the question of infringement; however, the Federal Circuit relied upon the district court's finding of dependant claims, and not on its determination of the meaning of specific terms. *Monsanto Company v. Syngenta Seeds Inc.*, 503 F.3d 1352, 1358 (Fed.Cir. 2007) ("The district court correctly interpreted and applied 35 U.S.C. § 112, ¶4 to read claims 4-9 of the 880 patent and claims 5-6 of the 863 patent as dependant. Therefore, this court affirms the district court's claim construction.").

DeKalb petitions this Court to adopt the construction of the North Carolina Court on the basis of collateral estoppel, and the construction of the Illinois Court to preserve consistency in the construction of related patents, and to disregard the Delaware Court's construction. Syngenta, not surprisingly, petitions this Court to disregard the North Carolina and Illinois decision, and to accept the reasoning of the Delaware Court.

The only action in which collateral estoppel is possibly applicable is the North Carolina action, as it is the only action which involved Patent '798. Collateral estoppel permits a court to preclude an issue from being litigated that has previously been decided against a party to the present action; however, the application of the doctrine of collateral estoppel is subject to the trial court's discretion. *Berger Transfer & Storage v. Central States, Southeast and Southwest Areas Pension Fund*, 85 F.3d 1374, 1377 (8th Cir. 1996). The Eighth Circuit has articulated four elements that are required for the application of collateral estoppel:

(1) the issue sought to be precluded is identical to the issue previously decided; (2)

> the prior action resulted in a final adjudication on the merits; (3) the party sought to be estopped was either a party or in privity with a party to the prior action; and (4) the party sought to be estopped was given a full and fair opportunity to be heard on the issue in the prior action.

Manion v. Nagin, 392 F.3d 294, 300 (8th Cir. 2004). Specifically in the case at bar, Plaintiff seeks to assert collateral estoppel in an offensive manner. Offensive collateral estoppel is defined as "a plaintiff . . . seeking to estop a defendant from relitigating the issues which the defendant previously litigated and lost against another plaintiff." *Parklane Hoisery Co., Inc. v. Shore*, 439 U.S. 322, 329 (1979).[2] The Eighth Circuit stated that "[i]f application of offensive issue preclusion would be unfair to a defendant, a trial judge should not allow the use of offensive issue preclusion." *Berger Transfer & Storage*, 85 F.3d at 1377.

The Court has a number of concerns with applying collateral estoppel to the facts of this case. Firstly, Syngenta, whom DeKalb seeks to preclude, was not a party to the prior action, and it is therefore unclear whether the third requirement is met. *See Manion*, 392 F.3d at 300. Their predecessor in interest, RPA, was a party to the action, however, the Parties dispute what rights Syngenta inherited from RPA. Furthermore, Syngenta is just one of the named Defendants in the present case; the remaining Defendants were not named in the prior litigation, and therefore were not able to litigate the issue sought to be precluded. While there is a relationship between all of the Defendants, this fact alone cautions the Court against the application of the doctrine. Secondly, the context of the North Carolina action was to determine whether additional individuals should be added as inventors of the '798 patent; it was not a suit for patent

[2]The Court recognizes that in the North Carolina case, RPA, the party which DeKalb asserts is in privity with Syngenta, was the Plaintiff, and not the Defendant. However, the reasons espoused by the Supreme Court, and subsequently the Eighth Circuit, for a more discretionary application of issue preclusion when used offensively, are equally applicable in the current case.

infringement. Therefore, the Court is not convinced that the issues decided in that case were identical to the issues to be decided here.[3] For these reasons, the Court concludes that the application of collateral estoppel is not appropriate.

The remaining two cases do not require a detailed discussion by the Court. The Illinois case is not preclusive, as it did not involve the '798 patent, and the Delaware case, while involving the same parties, did not clearly address the issues before this Court. The Delaware decision does not detail why it adopted the claim construction that it did, and therefore the issues were not sufficiently litigated and decided.[4]

A. "Fertile transgenic *Zea mays* plant," "progeny," and "seed"

Under Claim 1, the patent covers "*a fertile transgenic Zea mays plant* containing an isolated heterologous DNA construct encoding EPSP synthase . . . ." U.S. Patent 5,554,798, column 26. Claim 3 covers "a ***seed*** produced by the transgenic plant of Claim 1 which comprises said heterologous DNA construct[,]" and Claim 4 covers "a ***progeny*** transgenic ***Zea mays*** plant derived from the transgenic plant of claim 1 . . .." *Id.* Each of these claims raise the question of whether a fertile transgenic ***Zea mays*** plant, its seed, and its progeny, cover future generations of plants, and seed, or whether these claims are limited to the R0 through R2 generations, as argued by Syngenta.

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[3]The North Carolina Court concluded that "given the meaning accorded the word 'resistance' in section (b) supra, whether 'normally toxic' refers to a lethal or non-lethal application of glyphosate is of no consequence in determining whether any of the five applicants in this case should be added as inventors." *Pl.'s Opening Claim Construction Brief*, Ex. 3, 51.

[4]Syngenta argues that there was over 1000 pages of briefing on the issues before the Delaware court, and that this is evidence that the issues were sufficiently litigated and decided. However, the court is unpersuaded as the opinion itself, fails to provide sufficient analysis to support this conclusion.

DeKalb defines the term "fertile transgenic *Zea mays* plant" to mean a corn plant that is (1) transgenic because it includes DNA that was introduced into the plant or one of its ancestors through genetic engineering and (2) "fertile" because it can pass that introduced DNA on to its offspring. The plant is not limited to an R0 plant, because if DNA was introduced into the plant, that means that it is talking about the R0 plant, but when it goes on to say "[i]ntroduced into one of its ancestors," an R0 plant does not have ancestors, so this construction covers R0, R1, R2, R3 . . . Rn. DeKalb argues that two other terms, "progeny," appearing in Claims 1 and 4, and "seed," appearing in Claims 3 and 5, similarly have no limits to a single generation. DeKalb's claim construction for "progeny" means all succeeding generations of progeny, and "seed" means all succeeding generations of seeds.

Syngenta's position is that the Claims of the '798 Patent do not cover unlimited generations of plants. Syngenta says that ***Phillips*** teaches that the role of the specification is to describe and enable the invention. In turn, the claims cannot be of broader scope than the invention that is set forth in the specification. You cannot teach narrowly but claim broadly. The inventors only did experimentation with hygromycin,[5] and they only went to the R1 progeny plant described in the '798 Patent. They did not get beyond the R2 generation. Syngenta argues that they tried, but could not do it. You do not look to the intent of the invention, but what the invention actually is. Syngenta points to the Prosecution History in support of their position, specifically that DeKalb tried to claim R1 and higher generations, and it had a claim that said that, and it cancelled that claim. Syngenta says it's claim construction is consistent with what the

[5]Hygromycin is an antibiotic. The eventual use of the claimed invention was to show resistance to glyphosate, which is a herbicide, however, the original experiments were with hygromycin.

inventors said in the Specification:

Claim 1 - A fertile transgenic *Zea mays* plant containing an isolated heterologous DNA construct. That, says Syngenta , is the R0 plant.

Claim 2 - The transgenic plant of Claim 1 wherein the heterologous DNA construct comprises a promoter. That, says Syngenta, is the R0 plant.

Claim 3 - A seed produced by the transgenic plant of Claim 1. Syngenta says the seed gives rise to the R1 generation.

Claim 4 - A progeny transgenic *Zea mays* plant derived from the transgenic plant of Claim 1. Syngenta says the progeny plant is the R1 plant.

Claim 5 - A seed derived from the progeny plant of Claim 4, wherein said seed gives rise to the R2 generation.

Claim 6 - This is a product by process claim.

1. "Isolated" argument

Syngenta challenges DeKalb to define the word "isolated" in Claim 1, and argues that DeKalb wants this Court to ignore the word isolated, which Syngenta asserts limits Claim 1 to the R1 generation, which in turn limits the remaining claims which refer back to Claim 1. *K-2 Corporation v. Solomon,* 191 F.3d 1356 (Fed. Cir. 1999) and *Ethicon Endo-Surgery, Inc. v. United states Surgical Corporation,* 93 F.3d 1572 (Fed. Cir. 1996), according to Syngenta, caution that if the term need not be included in the claim, it cannot be ignored. You must give effect to all limitations of the claim. In *Bicon, Inc. v. The Straumann Company,* 441 F.3d 945 (Fed. Cir. 2006), Syngenta argues that it has been decided that allowing a patentee to argue characteristics specifically described in a claim are merely superfluous would render the scope of

the patent ambiguous, leaving examiners and the public to guess at the patent's scope.

To dispel Syngenta's argument that the term "isolated" in Claim 1 "means that isolated heterologous DNA can only be heterologous DNA that's in the R0 plant, it can't be in R1 and it can't be in R2," DeKalb points out that Claim 1also says, "said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, . . ." talking about DNA as expressed in the plant. The term "said DNA construct," has its antecedent basis in the term "isolated heterologous DNA construct." Claim 1 says "said DNA construct." Claim 2 says, "the heterologous DNA construct," again referring back to this as the antecedent claim. Claim 3 says, "said heterologous DNA construct;" again referring back. Claim 4 says, "said heterologous DNA construct," and so on. All of these claims have "said heterologous DNA construct" in them. All refer back to isolated heterologous DNA. DeKalb argues that if Syngenta's argument were true, these claims could not be set up this way, because they would be referring back only to the R0 generation, and could not refer to any subsequent generations of patents. They could not all be saying "said heterologous DNA construct."

The Federal Circuit in ***Bicon*** held that "[a]llowing a patantee to argue that physical structures and characteristics specifically described in a claim are merely superfluous would render the scope of the patent ambiguous, leaving examiners and the public to guess about which claim language the drafter deems necessary to his claimed invention and which language is merely superfluous." 441 F.3d at 950. The Court recognizes the requirement that claim language is not to be ignored, for doing so creates ambiguity for the public trying to comply with the patent's restrictions, however, it is not clear that Plaintiff's interpretation renders the word "isolated" redundant. The Court in ***Bicon***, held that physical characteristics described in the claim could not

be ignored, 441 F.3d at 950, the case before this Court, however, does not involve clearly referenced physical descriptions in the claims. *Phillips* instructs the Court to give terms their ordinary meaning as understood by one of ordinary skill in the art. 415 F.3d at 1313. While one of ordinary skill in the art may understand isolated to refer to the first generation, as that is the generation in which the modified DNA is isolated, this term must be looked at in the context of the claims as a whole. The remaining claims repeatedly reference "said DNA construct," implying that the term isolated references the DNA, and that it is that DNA in all subsequent generations which is claimed under the invention. This reading is not unreasonable, and does not render the term "isolated" redundant, as argued by Syngenta.

2. Comprising argument

Disputed terms within the claim are to be interpreted within the context of the language of the claims as a whole. *Phillips*, 415 F.3d at 1312. DeKalb uses this principle to argue that the language contained in Claim 6 supports the meaning ascribed to the terms in Claims 1, 3, and 4 by DeKalb, namely that the patent covers all subsequent generations. Syngenta uses this same principle to argue that the definitions of progeny, seed, and fertile transgenic *Zea mays* plant, refer only to limited generations, to do otherwise would render many of the claims superfluous, contrary to the rules of claim interpretation.

DeKalb summarizes Syngenta's argument as follows: because you can make an R0 plant using three steps in Claim 6, and because this claim is defining a transgenic plant in Claim 1, the transgenic plant in Claim 1 must be limited to the R1 plant. DeKalb argues that the first problem with that argument is that these steps are not recited in Claim 1. These steps are only recited in Claim 6, and Syngenta cannot read those limitations from Claim 6 into Claim 1. Secondly,

DeKalb argues that Claim 6 is not limited to the R0 plant. Claim 6 says the plant is "obtainable," you could obtain it by a process comprising these three steps. DeKalb argues that the word "comprising" has a very well-known meaning in the patent business; it means including but not limited to. Accordingly, Claim 6 covers a process that must include these three steps but may include other steps as well; it could include steps before these three steps, in between these three steps, or after these three steps. So, there is no reason why this claim should not cover progeny plants - - R3, R4 . . . Rn, which are made by crossing steps, backcrossing steps, breeding steps, that occur after the three steps that are recited in Claim 6. The key word is "comprising." Syngenta disputes that the term "comprising" allows such an open ended construction.

The Federal Circuit in *Gillette Company v. Energizer Holdings Inc.*, held that "the word 'comprising' transitioning from the preamble to the body signals that the entire claim is presumptively open-ended." 405 F.3d 1367, 1371 (Fed.Cir. 2005). The Court went on to state that "[b]ecause the patentee invoked this open-ended treatment in claim 1 of the . . . patent, the scope of claim 1 encompasses all safety razors satisfying the elements set forth in claim 1. The addition of elements not recited in the claim cannot defeat infringement." *Id.* at 1371-1372. "The transition 'comprising' creates a presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements." *Id.* at 1372 (citing *KCJ Corp. v. Kinetic Concepts Inc.*, 223 F.3d 1351, 1356 (Fed.Cir. 2000)). The Court is persuaded by the reasoning in *Gillette Company*. The specification provides a detailed history of the field at the time of the invention. Up until the time of the invention, no one had been able to create a fertile transgenic plant, this invention changed that. The specification goes onto say that the fertile transgenic plant can be used in conventional breeding programs. The process of breeding

corn was not new, and therefore the specific steps required to breed future generations need not have been included in Claim 6 of the patent. The Court agrees that Claim 6 does not serve to limit the claims of the patent to specific generations, due to the use of the all inclusive language "comprising."

The Court has considered all arguments raised by the Parties regarding the language of the claims themselves and concludes that the term "fertile transgenic *Zea mays* plant," "progeny," and "seed" refer to the first and all subsequent generations.[6] Furthermore, this is thoroughly supported by the intrinsic record. The ordinary meaning of the terms transgenic, progeny and seed, support a finding that the patent covers the first and subsequent generations.

The specification defines transgenic as follows:

> "Transgenic" is used herein to include any cell, cell line, ceallus, tissue, plant part or plant, the genotype of which has been altered beneficially by the presence of heterologous DNA that was introduced into the genotype by a process of genetic engineering, or which was initially introduced into the genotype of a parent plant by such a process and is subsequently transferred to later generations by sexual or asexual cell crosses or cell divisions.

United States Patent 5,554,798, column 4, lines 55-62. While there is some focus in the patent on the process of producing a first generation transgenic plant through particle bombardment and

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[6]Syngenta contends that DeKalb's construction, contrary to Syngenta's proposed construction, results in redundant claims. If DeKalb's view is adopted, Claim 1 covers R0, R1, R2, R3, R4 . . . Rn. Claim 4 covers R1, R2, R3, R4 . . . Rn, and is therefore completely redundant over Claim 1. There is no need for Claim 4. The only difference between Claim 1and Claim 4 is that Claim 4 does not cover R0. The same thing is true with Claims 3 and 5. DeKalb's construction, says Syngenta, is completely illogical. DeKalb disputes this position, arguing that while the claims contain overlap, they are not redundant. Neither party presents any case law in support of their respective arguments, and the Court concludes that neither argument is persuasive. While the claims do contain overlap, they are clearly not identical, and the Court considers the specification and prosecution history to further support its conclusion regarding the appropriate claim construction.

selection, reading the specification, one would understand the patent to refer to all subsequent generations. United States Patent 5,554,798, p.1 ("This invention relates to fertile transgenic plants of the species *Zea mays* (oftentimes referred to herein as maize or corn). The invention further relates to producing transgenic plants via particle bombardment and subsequent selection techniques which have been found to produce fertile transgenic plants."). Other language found in the specification further supports this conclusion. In the "Summary of the Invention," the specification states "[t]he invention further relates to regenerated fertile mature maize plants obtained from transformed embryogenic tissue, transgenic seeds produced therefrom, and R1 and *subsequent generations*." *Id.* at column 4, line 15-20 (emphasis added). The "Description of the Preferred Embodiments" section states: "Some of the plants of this invention may be produced from the transgenic seed produced from the fertile transgenic plants using conventional crossbreeding techniques to develop transgenic elite lines and varieties, or commercial hybrid seed containing heterologous DNA." *Id.* column 5, lines 13-18; *see also Id.* at column 4, line 48-52 ("[T]he present invention is directed to the production of fertile transgenic plants and seeds of the species *Zea mays* and to the plants, plant tissues, and seeds derived from such transgenic plants, as well as the subsequent progeny and products derived therefrom."). Finally, the Court notes that in describing how to create fertile transgenic plants, the specification recognizes that it may take 6-8 generations before two parent corn plants are created which contain the heterologous DNA. United States Patent 5,554,798, column 13, lines 47-52 ("This backcrossing process is repeated until the original normal parent has been converted to a line containing the heterologous DNA and also possessing all other important attributes originally found in the parent. Generally, this will require about 6-8 generations.").

All of the portions of the specification, cited above, support a finding that the invention was intended to allow the production of fertile corn plants which could be crossbred to produce additional plants which contained the desired heterologous DNA. Other processes had been developed which could be used to transform the DNA of plants, however, these processes had not successfully resulted in fertile plants, which could produce seed and pass the desired mutated DNA onto future generations. This stated purpose supports DeKalb's position that the term "fertile transgenic *Zea mays* plant" includes all generations through Rn, and that progeny and seed have similarly broad meanings.

The interpretation of the terms at issue in this section is clearly discernable from the claims themselves and the specification. Syngenta relies heavily on the prosecution history to support its proposed construction,[7] however, the prosecution history in this case is convoluted. DeKalb also

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[7]For example, Syngenta argues that earlier versions of the patent included broader language that was eventually deleted from the claim language. A very important fact, says Syngenta, is that the original Claim 16 of the earliest filed 1990 '983 application, said "[t]he R2 and higher generations of the plant of Claim 1." That language was dropped. It does not appear in the issued Patent. Again, Claim 16 of the 1995 Patent, '073, stated "generations derived from the plant of claim 1." That language was also dropped. In 1995, there was a very broad claim pending, "a fertile transgenic *Zea mays* plant containing heterologous DNA which is heritable." Syngenta says that would clearly have covered all generations. *See e.g.* United States Patent 5,554,798, column 1 (under BACKGROUND OF THE INVENTION, this language appears: "European patent applications . . . describe the introduction of DNA into maize pollen followed by pollination of maize ears and formation of seeds. The plants generated from these seeds are alleged to contain the introduced DNA, but there is no suggestion that the introduced DNA was heritable, as has been accomplished in the present invention. Only if the DNA introduced into the corn is heritable can the corn be used in breeding programs as required for successful commercialization of transgenic corn."). But, the language was narrowed. The word "isolated" was inserted, and the word heritable was removed. That word was put in, says Syngenta , because it was limited to the R0 generation. The Court disputes that this claim history is significant, and further finds that there are numerous references in the patent specification to the heritable quality of the fertile transgenic *Zea mays* plant. Following the definition of transgenic, the specification defines heritable to mean 'that the DNA is capable of transmission through a complete sexual cycle of a plant, i.e., it is passed from one plant through its gamates to its

points to portions of the prosecution history in support of their position.[8] While the Court recognizes that *Phillips* includes the prosecution history as part of the intrinsic record, having considered the ordinary meaning of the terms within the context of the claims and the specification, the Court does not find it necessary to parse the specific language of the prosecution history. The Court adopts DeKalb's proposed construction.

B. "Heterologous DNA construct" and "Promoter"

The Court must next determine the meaning of the terms "Heterologous DNA construct" and "Promoter." The term "Heterologous DNA construct is found in all six claims of the patent. The term promoter, is found only in Claim 2, which states "[t]he transgenic plant of Claim 1 wherein the heterologous DNA construct comprises a *promoter*." United States Patent 5,554,798, column 26 (emphasis added). DeKalb suggests that these two terms be addressed together, however, Syngenta disagrees with DeKalb's proposed definition of Heterologous DNA, as well as their definition of promoter. Therefore, the Court believes it is prudent to address each

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progeny plants in the same manner as occurs in normal corn." United States Patent 5,554,798, column 5, lines 3-6. The invention is described as relating "to transgenic *Zea mays* seeds stably containing heterologous DNA and progeny which have *inherited* the heterologous DNA." *Id.* at column 3, lines 65-68 (second emphasis added). The patent specification further states that "[o]nly if the DNA is *heritable* can the corn be used in breeding programs as required for successful commercialization of transgenic corn." *Id.* at column 1, lines 58-60 (emphasis added). These references support DeKalb's position that the invention covers a transgenic *Zea mays* plant which contains heterologous DNA which is heritable. This also supports DeKalb's position that the claim language covers all subsequent generations and is not limited as proposed by Syngenta.

[8]For example, DeKalb points to portions of a prior Lundquist and Walters Patent application which specifically limited the generations covered as evidence that no such limitations exist in the present patent. Claim 1 of the Lundquist and Walters' '956 Patent clearly recites the R0 generation. Claim 1 of the '798 patent does not. Claim 5 of the '956 Patent clearly recites an R1 generation plant derived from the plant of Claim 1. Claim 4 of the patent at issue does not; it recites progeny derived from the transgenic plant of Claim 1. Claim 6 of the '956 Patent does not recite any particular generation. It says progeny derived from the progeny of Claim 5.

term independently.

1. "Heterologous DNA construct"

DeKalb proposes that heterologous DNA construct encoding EPSP synthase means "DNA (1) that is not normally found in the plant, but parts of the heterologous DNA construct may be identical to DNA sequences originally present in the corn plant and (2) that has the necessary components to produce EPSP synthase." Syngenta takes issue with DeKalb's position that such heterologous DNA construct must contain the "necessary components" to produce EPSP synthase. Syngenta argues that no such limitation is found in the claim language and therefore, the addition of such a limitation is improper.

The Court first looks at the specification for guidance, which states:

> As used herein, the term "heterologous DNA" refers to a DNA segment that has been derived or isolated from one genotype, preferably amplified and/or chemically altered, and later introduced into a *Zea mays* genotype that may be the same *Zea mays* genotype from which the DNA was first isolated or derived. "Heterologous DNA" also includes completely synthetic DNA, and DNA derived from introduced RNA. Generally, the heterologous DNA is not originally resident in the *Zea mays* genotype which is the recipient of the DNA, but it is within the scope of the invention to isolate a gene from a given *Zea mays* genotype, and to subsequently introduce multiple copies of the gene into the same genotype, e.g., to enhance production of the amino acid.
>
> Therefore, "heterologous DNA" is used herein to include synthetic, semi-synthetic, or biologically derived DNA which is introduced into the *Zea mays* genotype, and retained by the transformed *Zea mays* genotype. The DNA includes but is not limited to, non-plant genes such as those from bacteria, yeasts, animals or viruses; modified genes, portions of genes, chimeric genes, as well as genes from the same or different *Zea mays* genotype.

United States Patent 5,554,798, column 6, lines 30-52. The patent further states that "[s]uitable heterologous DNA for use herein includes all DNA which provides for, or enhances, a beneficial feature of the resultant transgenic corn plant." United States Patent 5,554,798, column 8, lines 1-

3. This is clearly a broad definition of Heterologous DNA construct, and would include any DNA construct which could "encode for EPSP synthase[,]" the remainder of the sentence of Claim 1 of the '798 patent. United States Patent 5,554,798, claim 1 ("A fertile transgenic *Zea mays* plant containing an isolated heterologous DNA construct *encoding* EPSP synthase . . . ." (emphasis added)).

From the claim language, DeKalb's definition of Heterologous DNA construct, to mean that it contains the "necessary components" to produce EPSP synthase is not unreasonable. While the Court recognizes the description in the patent specification states that the DNA may encode for any beneficial feature, the language of the claim itself limits the heterologous DNA construct, as one that "encodes for EPSP synthase. If the DNA construct does not contain the necessary components to produce EPSP synthase, then it cannot encode for it. Therefore, the Court adopts DeKalb's definition of "Heterologous DNA construct."

2. "Promoter"

DeKalb argues that "promoter" means, a DNA construct that tells the cell to start a process that results in the production of the EPSP synthase. DeKalb specifically asserts that this is a general claim, and includes all species of promoter.[9] Syngenta presents an alternate construction, asserting that the term promoter should be construed to exclude actin and rice actin

[9]Both Parties make arguments based on genus claims verses species claims. Within the context of promoters, reference can be made to all promoters, which would be the broadest genus claim; reference could be made to a group of promoters, for example bacterial promoters or biological promoters, or there could also be reference to a specific species of promoter, for example actin promoter, which is the promoter used by Syngenta in its production of GA21 corn.

promoters.[10] Syngenta basis this proposed construction on the specification language and the patent prosecution history. Syngenta also argues that DeKalb specifically disclaimed the actin promoter in a later patent application, and therefore, cannot now assert that it is covered by the patent at issue.

Before the Court addresses the specific arguments, the Court will briefly describe the roll of the promoter. The term "promoter" refers to a DNA sequence that instructs the cells to start a process which results in the production of EPSP synthase. This DNA sequence is key to being able to modify the corn plants so that they are resistant to glyphosate.[11]

DeKalb's principal argument is that by reading the claim terms to exclude an actin promoter, Syngenta is improperly reading a limitation into the claim. In the case of ***Hoganas AB v. Dresser Industries, Inc.***, the Federal Circuit held that "[it] is improper for a court to add 'extraneous' limitations to a claim, that is limitations added 'wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.'" 9 F.3d 948, 950 (Fed.Cir. 1993) (citing ***E.I.Du Pont de Nemours & Co. v. Phillips Petroleum Co.***, 849 F.2d 1430,

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[10]The Parties refer alternately to a rice actin promoter, or simply an actin promoter. A rice actin promoter is a type of actin promoter, therefore the Court will simply refer to an actin promoter.

[11]DeKalb does not dispute that at the time of the patent application, the named inventors, Lundquist and Walters, had only conducted research with hygromycin resistance, not glyphosate resistance. However, DeKalb argues that it is the ability to transform the cells and create a fertile plant that is the key invention, and that any type of transformation can be conducted through the process described in the patent. ***See DeKalb's Claim Construction Brief***, 4 ("Lundquist and Walters demonstrated that their fertile transgenic corn plants were able to pass onto progeny corn plants the hygromycin resistance trait provided by the hygromycin phosphotransferase gene they inserted. However, with the availability of their process for transforming corn scientists had the ability to insert any gene of interest into corn to provide a new or enhanced trait, including the glyphosate resistance trait that is the subject of the '798 patent claims.").

1433 (Fed. Cir. 1988)). Syngenta argues that it is not reading a limitation into the claim, but rather is interpreting the claim in light of the specification. Specifically, says Syngenta, DeKalb cannot teach narrowly but claim broadly. Syngenta argues that the only reference to a promoter encoding for EPSP synthase, is a bacterial promoter, and that this cannot be construed to cover an actin promoter, which is a mutated biological promoter.

DeKalb's argument, that Syngenta's construction improperly limits the claim, and Syngenta's argument, that the claim must be construed in light of the specification, are two sides of the same coin. That is, using the specification as guidance as to the meaning of the claimed terms, without using the specification to impose limitations not found in the claim itself. The Federal Circuit case law is clear that a district court cannot impermissibly read limitations into a claim. *See E.I. du Pont de Nemours & Co*, 849 F.2d at 1433. The Federal Circuit held that "[c]ourts can neither broaden nor narrow the claims to give the patentee something different than what he has set forth." *Id; see also Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 867 (Fed.Cir. 1985) ("Generally, particular limitations or embodiments appearing in the specification will not be read into the claims."). However, "it is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim." *E.I. du Pont de Nemours & Co*, 849 F.2d at 1433. "But this is not to be confused with adding an extraneous limitation appearing in the specification, which is improper." *Id.*

The rules cited above, dictated to the district court by the Federal Circuit, are easy to state, however they are very difficult to apply. By DeKalb's own admission, at the time the patent at issue was prosecuted, the named inventors had not used an actin promoter to create glyphosate resistance. However, DeKalb argues that the patent is aimed at the process by which fertile corn

plant is created, the specific promoter that is used is not part of the claimed invention. The Court agrees with DeKalb's interpretation. Syngenta makes a number of strong arguments regarding enablement, and fraud, which will appropriately be addressed later in the litigation, relating to the inability of the inventors, at the time of the invention, to perform the claimed invention. However, this is not the appropriate time to address those questions. The Court's obligation is to interpret the terms of the claim, in accordance with the claim language, the specification, and the prosecution history. Nothing in the specification defines the term promoter as referring only to bacterial promoter, nor does it limit the type of promoter in anyway. Syngenta is correct that the only examples cited in the specification reference a bacterial promoter, however, examples do not serve to limit the claim construction. *Loctite Corp.*, 781 F.2d at 867.

While the Court does not believe that the term promoter, as used in the patent, excludes an actin promoter, the Court must address Syngenta's disclaimer argument, which if correct, would serve to limit DeKalb's claim construction. Syngenta points to the prosecution history of the '545 and '713 patents to support their position that DeKalb disclaimed coverage of the actin promoter in the '798 patent. DeKalb disputes this position, arguing that in an attempt to overcome the rejection of the '545 and '713 patents on the basis of obviousness-type double patenting, DeKalb represented to the patent office that the '798 patent contained a genus claim, encompassing all promoters, whereas the '545 and '713 patents were species claims; at no point did they disclaim coverage of the actin promoter from coverage of the '798 patent.

The prosecution history of the patents at issue in these arguments is somewhat convoluted, and therefore the Court will review it in detail. All three patents, the '545 patent, the '713 patent, and the '798 patent, claim priority back to the '983 patent application, which is the

parent application for the '798 patent.[12] One of the claims of the '545 patent, was rejected by the patent office based on obviousness-type double patenting.[13] *Syngenta's Opening Claim Construction Brief*, Ex. 19.[14] This rejected claim specified a "heterologous DNA construct encoding EPSP synthase operably linked to an actin promoter." *Syngenta's Opening Claim*

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[12]In *Microsoft Corporation v. Multi-Tech Systems, Inc.*, the Federal Circuit held that "the prosecution history of one patent is relevant to an understanding of the scope of a common term in a second patent stepping from the same parent application." 357 F.3d 1340, 1349 (Fed.Cir. 2004). Therefore, the Court will look at the prosecution history of all three patent applications in determining whether DeKalb disclaimed the use of an actin promoter.

[13]35 U.S.C. § 154(a)(2) limits the duration of a patentee's right to exclude others from practicing a claimed invention. "The judicially-created doctrine of obviousness-type double patenting cements that legislative limitation by prohibiting a party from obtaining an extension of the right to exclude through claims in a later patent that are not patentably distinct from claims in a commonly owned earlier patent." *Eli Lilly and Co. v. Barr Laboratories, Inc.*, 251 F.3d 955, 967 (Fed. Cir. 2001). "A later claim that is not patentably distinct from an earlier claim in a commonly owned patent is invalid for obvious-type double patenting." *Id.* at 698.

[14]This rejection stated in full:

> Claims 82-87 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. patent No. 5,554,789 [sic 798]. Although the conflicting claims are not identical, they are not patentably distinct from each other because the prior US patent is drawn to a fertile transgenic *Zea mays* plant containing an isolated heterologous chimeric DNA construct encoding EPSP synthase operably a promoter wherein said heterologous chimeric DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said tolerance or resistance is not present in *Zea mays* plants not containing said chimeric DNA and wherein said heterologous chimeric DNA construct is transmitted through a normal sexual cycle of the transgenic plant. The instant application is considered an obvious variation on the prior patent by the addition of claims directed to the plant expressing EPSP synthase in which the promoter is either an actin or histone promoter. In the absence of evidence to the contrary, the person having ordinary skill in the art would view the use of prior art promoters, such as actin or histone, to be art recognized equivalents to plant active promoters *per se*. Accordingly the prior art patent and the instant comprise but a single inventive concept and thus one invention.

Syngenta's Opening Claim Construction Brief, Ex. 19, 5, lines 7-20.

Construction Brief, Ex. 17. DeKalb appealed this rejection. A similar series of events occurred in the prosecution of the '713 patent.

Claim terms are generally given their "full ordinary and customary meaning, unless the patentee unequivocally imparted a novel meaning to those terms or expressly relinquished claim scope during prosecution." *Omega Engineering, Inc.*, 334 F.3d at 1323. "As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public's reliance on definitive statements made during prosecution." *Id.* at 1324. However, this doctrine is to be approached cautiously, as only a clear and unambiguous disclaimer is sufficient to limit the ordinary meaning of a claim term. *Id.*

Syngenta relies upon DeKalb's brief in support of their appeal of the PTO's denial of DeKalb's '545 patent. It is helpful to quote at length the portion of DeKalb's brief relied upon by Syngenta.

> While independent claim 82 of the present application is similar in terminology to claim 1 [of the '798 patent], it recites that the DNA encoding EPSP synthase is operably linked to an actin promoter, i.e. as if the promoter recited by claim 2 of the '798 patent is the actin promoter. Thus, claim 82 can be considered a species of claims 1-2.
>
> The only reason given for the Examiner's conclusion that claims 82-87 are obvious over the claims of the '798 patent in the Office Action mailed April 30, 1997 is that "the person having ordinary skill in the art would view the use of prior art promoters, such as actin or histone, to be art recognized equivalents to plant active promoters *per se*." (Appendix II).
>
> While claim 2 of the '798 patent, which depends on claim 1, recites that the DNA construct in the transgenic maize plant comprises a promoter, none of the claims in the '798 patent recite a transgenic maize plant containing a DNA construct comprising an actin or a histone promoter. Nor is there mention of an actin promoter in the '798 specification. Although several promoters are disclosed at Col 9, lines 39-57, neither the text nor the cited Weising et al. paper discloses the use of actin promoters to express heterologous genes in plants. Thus, claims 1-6 of the '798

> patent do not render Applicants' invention obvious.
>
> To support his argument that the '798 patent suggests the use of the actin promoter with the EPSPS gene, the Examiner argues that the Wang et al. paper is "cited and incorporated by reference" into the '798 patent. This is not the case.
>
> The Wang et al. paper (Appendix III) is not listed in the publications incorporated by reference at Col. 3, lines 9-54 of the '798 patent. It is listed among eight pages of references cited during the prosecution of the patent, i.e., on information disclosure statements, but this list is not incorporated by reference into the application. Therefore, the specification of the '798 patent would not *per se* suggest using the actin promoter with an EPSPS gene, to impart glyphosate resistance to maize.

Syngenta's Opening Claim Construction Brief, Ex. 21, 5-6 (emphasis in original). Syngenta further argues DeKalb's disclosure by pointing out that the title of the section from which the above quoted material is taken, states "The '798 Patent Does Not Disclose or Suggest the Actin Promoter." *Syngenta's Opening Claim Construction Brief*, Ex. 21, 5. The only mention of an actin promoter in relation to the '798 patent was in a single reference listed in the patent. However, DeKalb expressly denied the significance of this reference when they stated that it was one reference, in a list of eight pages of references. *Syngenta's Opening Claim Construction Brief*, Ex. 21, 6. DeKalb further argued in their appeal brief before the PTO, that even if the Wang paper were incorporated by reference, it "Would Not Give Rise to a Reasonable Expectation that the Actin Promoter Would Express Useful Levels of Resistant EPSPS in Maize." *Syngenta's Opening Claim Construction Brief*, Ex. 21, 6. DeKalb stated that "there is no mention or suggestion in Wang et al. of the EPSPS gene. Moreover, the Wang paper did not show that regenerable *Zea mays* cells transformed with a construct having the actin promoter linked to a gene resulted in a fertile transgenic plant, or seed or progeny of such a plant, which expressed that gene at any level. . . . Thus, Wang et al. do not disclose or suggest Applicants'

invention." *Syngenta's Opening Claim Construction Brief*, Ex. 21, 7 (emphasis in original).

Prior to DeKalb appealing the rejection of their '545 patent application, DeKalb responded to the rejection in a July 15, 1997 amendment, in which they stated

> The Examiner is respectfully requested to note that this is a situation of Applicants claiming a small number of species falling somewhere within the broad generic disclosure of the '789 [sic '798] Lundquist et al. patent . . . . The fact that a claimed species may be encompassed by a prior generic description does not by itself render the species obvious.

Def. Syngenta's Opening Claim Construction Brief, Ex. 20, 3. Following this response, the Examiner concurred with DeKalb's assertion that the '545 patent was a species claim, and the '798 patent was a genus claim, but continued to deny the patent application on the basis of obviousness-type double patenting. DeKalb eventually overcame this dismissal on the basis of unexpected results. *See Pl. DeKalb's Responsive Claim Constructive Br.*, Ex. 24, 2).

DeKalb made numerous statements, as asserted by them in their claim construction briefs, that their '545 patent application was a species claim. However, DeKalb also made numerous representations, far more than those relating to genus verses species, stating that the '798 patent did not disclose an actin promoter. When a court is determining whether a patent is unenforceable based on obviousness-type double patenting, a two-part test is employed. "First, as a matter of law, a court construes the claim in the earlier patent and the claim in the later patent and determines the differences. Second, the court determines whether the differences in subject matter between the two claims render the claims patentably distinct." *Eli Lilly and Company*, 251 F.3d at 968. In this case, the patent office made the determination, rather than a court, but the analysis was the same. In rejecting the second patent application, the PTO determined that the '545 patent was not patentably distinct, because the '798 patent disclosed an actin promoter. *See*

Syngenta's Opening Claim Construction Brief, Ex. 22, 3. The key difference in the Parties' arguments, is how DeKalb overcame this rejection. If as Syngenta argues, DeKalb overcame the rejection by asserting that the '798 patent did not recite the actin promoter, then, Syngenta would be correct that the '798 patent excludes the actin promoter from the definition of promoter. If however, DeKalb's assertion is correct, that they overcame the rejection by showing an unexpected use, then the general meaning of the term promoter would remain valid.

For two reasons, the Court concurs with DeKalb, that they did not disclaim the recitation of an actin promoter in their application for the '545 patent. First, the Court notes that claim terms are generally given their "full ordinary and customary meaning, unless the patentee *unequivocally* imparted a novel meaning to those terms or *expressly* relinquished claim scope during prosecution." *Omega Engineering, Inc.*, 334 F.3d at 1323 (emphasis added). The Court has reviewed the numerous references to the prosecution history cited by the Parties, and concludes that it is inconclusive. DeKalb, in an effort to overcome the PTO's rejection of its '545 patent did state, numerous times, that the '798 patent did not disclose an actin promoter. However, DeKalb also made statements that while the '798 patent recited promoters generally, the '545 patent referenced a specific type of promoter. These statements do not constitute a clear and unambiguous statement of disclaimer. Secondly, the Court concurs with DeKalb, that DeKalb overcame the obviousness-type double patenting rejection by asserting that the actin promoter showed unexpected results. *See DeKalb's Responsive Claim Construction Brief*, Ex. 24, 2 ("The claimed invention is considered patentable in view of the establishment of unexpected results, as set forth in the declaration of Dr. T. Michael Spencer, establishing the criticality of an actin promoter in the expression of the gene of interest in *Zea mays* plants."). The case law is

clear that a patentee may overcome a finding of obviousness, for a later patent which falls within the range of an earlier patent, if the patentee can show unexpected results. *Iron Grip Barbell Company, Inc. v. USA Sports, Inc.*, 392 F.3d 1317 (Fed.Cir. 2005) ("When 'the difference between the claimed invention and the prior art is some range or other variable within the claims . . ., the [patentee] must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results.'" (citing *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990) (alterations in original).).

The Court concludes that the plain meaning of the term promoter includes all promoters, and specifically includes the actin promoter. The Court further finds that while DeKalb made a number of statements suggestive of disclaimer, these statements were not unambiguous, and therefore insufficient to change the plain meaning of the claim terms.

C. "EPSP Synthase"

The Court must next construe the term EPSP Synthase. Claim 1 of the patent states: "A fertile transgenic *Zea mays* plant containing an isolated heterologous DNA construct encoding EPSP synthase wherein said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate . . . ." EPSP synthase is an abbreviation for an enzyme with the technical name of 5-enolpyruvylshikimate-3-phosphate synthase.

The legal arguments made by the Parties are similar to those made in relation to the term "promoter." DeKalb argues that there is no restriction on the term EPSP synthase and that the heterologous DNA can encode for any type of EPSP synthase, not just bacterial EPSP synthase. Syngenta argues that the specification limits the claim to bacterial EPSP synthase. The Court will not repeat the legal standard for claim interpretation as it relates to the interpretation of claim

terms in light of the specification. *See* § III.B.2 above.

The plain language of the claim supports DeKalb's interpretation. There is no limiting language in the claim, rather, the claim asserts that the corn plant contains "an isolated DNA construct encoding EPSP synthase . . .." United States Patent 5,554,798, claim 1. Furthermore, the Court does not find any limitation in the specification. Syngenta is correct that the specification does not specifically recognize the use of non-bacterial EPSP synthase, however, the specification does list a number proteins for which the DNA can encode. The passage in the specification states: "For example, the DNA can encode a bacterial dad A for increased lysine production; Bacilius thuringiensis (BT) t-endotoxin or protease inhibitor for insect resistance; bacterial EPSP synthase for resistance to glyphosate herbicide; and chitinase or glucen endo-1,3-B-glucosidase for fungicidal properties." United States Patent 5,554,798, column 8, lines 6-9, 62-63.

The Court is cognizant that Syngenta's argument is slightly more sophisticated, in that the items listed in the specification are examples for which the DNA can encode, and it lists bacterial EPSP synthase, not specifically as an example of a type of EPSP synthase, but in reference to the beneficial trait of glyphosate resistance. Syngenta argues that one of ordinary skill in the art would read this to mean that in order to provide glyphosate resistance, one should use a bacterial EPSP synthase. However, the Court is not convinced that this distinction is significant. It is still clear, from the specification language, that the invention can be used to encode for any number of beneficial traits, and that the use of bacterial EPSP synthase to encode for glyphosate resistance is just an example.

In *Microsoft Corporation*, the Federal Circuit did limit the meaning of a claim term based

on the patent specification. 357 F.3d at 1347. The Court stated that "one purpose for examining the specification is to determine the patentee has limited the scope of the claims." *Id.* (internal citation omitted).

> When the specification "makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent, even though the language of the claims, read without reference to the specification, might be considered broad enough to encompass the feature in question."

Id. at 1347 (quoting *SciMed Life Systems, Inc. v. Advanced Cardiovascular Systems, Inc.*, 242 F.3d 1337, 1341 (Fed.Cir. 2001)). However, *Microsoft Company*, is distinguishable, as that case contains a number of specific references throughout the specification, that the invention is intended to run over or through a telephone line. 357 F.3d at 1347-1348. In that case, despite finding that the claim language was broad enough to include the infringing device, the Federal Circuit recognized that "[n]onetheless, the claims must be interpreted in light of the specification, which . . . repeatedly and consistently describes the local and remote systems of the claimed inventions as communicating directly over a telephone line." *Id.* Therefore, the court concluded that the invention was limited by the specification. *Id.* The present case does not have such specific language in the specification. In column 8, as quoted above, the patent does state "bacterial EPSP synthase," however, as correctly stated by DeKalb, these are merely examples of how heterologous DNA can be used to enhance beneficial features of a transgenic corn plant. United States Patent No. 5,554,798, column 8, lines 1-10. The patent specification is of little use in interpreting the term EPSP synthase, and certainly does not clearly limit the use of that term to bacterial EPSP synthase.

The Court agrees with Syngenta, that the only mention in the specification is to bacterial

EPSP synthase, however, this is not conclusive.[15] The term of the claim itself is clearly without limitation. While, the Court recognizes Syngenta's argument that the interpretation of the claims is intended to provide the scope of the invention, and that in describing the invention, DeKalb at no point referenced any type of synthase outside of bacterial EPSP synthase. However, the Court cannot use this to place a limitation on the clear language of the claims. At no point in the specification did DeKalb make statements which suggest that the term EPSP synthase is limited to bacterial EPSP synthase. Rather, DeKalb stated that this was an example of what could be used to create glyphosate resistance. Therefore, the Court concludes that DeKalb's interpretation of the terms EPSP synthase is correct, and is not limited to bacterial EPSP synthase.

D. "Resistance to normally toxic levels of glyphosate"

The next claim term for this Court to construe is "resistance to normally toxic levels of glyphosate." This phrase can be broken down into two distinct terms, "resistance" and "normally toxic levels of glyphosate." DeKalb argues that resistance means any level of resistance above that observed in a non-transformed plant, and normally toxic levels of glyphosate means any level of glyphosate which will damage a normal plant. Syngenta proposes that the phrase means "that as a result of the expression of the DNA construct, the corn plant will not be significantly injured when glyphosate is applied to it at a rate that will typically kill a non-transgenic corn plant of the same variety growing under similar conditions." *Syngenta's Opening Claim Construction Br.*,

[15]The Court also notes that the prosecution history is equally silent on the definition of the term. Syngenta asserts that the prior version of a claim in the related '045 patent, DeKalb specifically stated bacterial EPSP synthase. *Syngenta's Opening Claim Construction Brief*, 10. However, this wording did not remain in the final claim. This language does not assist the Court as it could be read to mean that the final version of the claim was intended to be broader, than the first.

26-27. The Court notes that it is necessary to address the terms of this phase independently, as the phrase itself is not found in the patent specification.[16]

The Court first looks at the available intrinsic evidence in determining the meaning of resistance to normally toxic levels of glyphosate. *See Phillips*, 415 F.3d at 1315. The applicable language of Claim 1, for the purposes of construing these terms states, "wherein said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said resistance is not present in a *Zea mays* plant not containing said DNA construct. . ." This claim language is significant because it compares resistance between the fertile transgenic plant and the non-transgenic plant. The claim language expresses a comparison of resistance, not an exact result or absolute value. DeKalb's definition of "resistance" presents a comparative definition. There is no absolute value described in the claims, in the Specification, or in the Prosecution History.

The Court looks next to the specification. As correctly noted by Syngenta, the specification does not reference "resistance to normally toxic levels of glyphosate." The specification does address the purpose of the patent in general, which is to enhance beneficial features in corn, through the use of the process outlined in the patent. The specification states that "[t]he transgenic plants produced herein are expected to be useful for a variety of commercial and research purposes." United States Patent 5,554,798, column 14, lines 11-12. The specification then spends the next four paragraphs describing potential uses of the invention,

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[16]This is where DeKalb petitions the Court to rely upon the North Carolina decision, which defined the term as partial resistance to low levels of glyphosate. However, as the Court discussed above, the Court is not bound by that opinion, and will therefore conduct it's own analysis.

almost entirely discussing commercial applications. *Id*. at column 14, lines 13-49. The reference to research is expounded in the fourth paragraph of the section entitled "Uses of Transgenic Plants," and states as follows:

> The transgenic plants may have many uses in research or breeding, including creation of new mutant plants through insertional mutagenesis, in order to identify beneficial mutants that might later be created by traditional mutation and selection. The methods of the invention may also be used to create plants having unique "signature sequences" or other marker sequences which can be used to identify proprietary lines or varieties.

United States Patent, 5,554,798, column 14, lines 42-49. DeKalb argues that this reference to research value allows a less stringent interpretation of resistance, as any level of resistance would be beneficial for research purposes. However, the portions of the patent which reference research, as quoted above, anticipate research beyond the original enhanced trait, in this case glyphosate resistance. These portions of the specification do not support DeKalb's argument, as they do not suggest that the invention is useful for providing a basis for future research that might produce corn with the desired enhanced trait. However, this conclusion does not conclusively support Syngenta's position either, as this portion of the specification does not specifically address the level of resistance necessary to fall within the scope of the invention.

Looking to how the inventors view their invention, under Example 1, set forth in the specification, the patent describes an experiment performed with hygromycin. The experiment tested the resistance to hygromycin in plant shoots, not full grown plants. The specification states that, following the application of either 0 or 100 mg/l[17] hygromycin, each plate contained duplicate sections of each shoot, and was incubated in the dark for 18 hours.

[17]Milligrams per liter.

> They were then incubated in a light regimen of 14 hrs light 10 hrs dark at 26° C. for 48 hrs, and rated on a scale of from [sic] 0 (all brown) to 6 (all green) for the percent of green color in the leaf tissue. Shoots were classified as untransformed (hygromycin sensitive) if they had a rating of zero and classified as transformed (hygromycin resistant) if they had a rating of 3 or greater.

United States Patent 5,554,798, column 21, lines 6-12. While it is correct that this section does not reference glyphosate resistance, it does reference resistance in general and therefore is instructive on the meaning of that term. The intention of the inventors was to create resistance to glyphosate, the inventors stated that they had created resistance in an experiment where there was some resistance. While the Court finds this evidence strongly supportive of DeKalb's position, it is not conclusive. The experiment was in the context of small portions of plant roots, not the plant themselves, and involved hygromycin, not glyphosate.

Syngenta argues that exposure to toxic levels of glyphosate means that the non-transgenic plant would be killed. DeKalb complains that Syngenta relies on the extrinsic evidence of Dr. Ward who disregards the first stage of the selection process in the specification to refer to the second stage of that process. The Court is not relying on the extrinsic evidence of Dr. Ward, but notes from reading the specification on page 12 at columns 22-24, the inventors say that "once the few individual transformed cells have grown sufficiently, the same may be shifted to media containing a higher concentration of the toxic agent to kill essentially all untransformed cells." Referring to the first stage, the specification language states, "[p]referably, the concentration of the agent is initially such that about a 5 to 40 percent level of growth inhibition will occur." This passage talks about harm to plants, not killing, and its talking about the effect caused by a toxic agent. Reference to resistance to toxic levels of glyphosate includes both harming and killing the non-transformed plant.

DeKalb's definition of resistance is further supported by the patent prosecution history. In an amendment filed by DeKalb in the prosecution of the '798 patent, it states that "the DNA construct is expressed so that the transgenic plant exhibits tolerance or resistance to glyphosate at levels that render it identifiable over the corresponding untransformed corn plant which does not comprise the heterologous DNA." Pros. Hist. United States Patent 5,554,798, 748-749. Furthermore, the patent officer, in the course of prosecution, stated that:

> The specification does not clearly evidence the effects of the expression of EPSP synthase in transgenic corn plants in the absence of Spencer declaration, the original filed in parent application 07/508,045, of the instant continuation application. Applicants' attorney submitted said declaration for review in this interview. The declaration clearly evidences that a person of ordinary skill in the art, employing the methods disclosed in the specification, would have obtained a transgenic corn plant expressing EPSP synthase at levels sufficient to obtain *resistance or partial resistance* to glyphosate at levels that would normally kill corn.

United States Patent 5,554,798, Pros. Hist. Joint Submission, 6372 (emphasis added). These statements made during the prosecution of the '798 patent, taken in conjunction with the specification, lead the Court to conclude that **"**resistance" means any level of resistance above that observed in a non-transformed plant.

However, this does not conclude the Court's analysis, as it is also necessary to define "normally toxic levels of glyphosate."[18] The specification does not define the term normally toxic levels of glyphosate, and therefore the Court again turns to the prosecution history. The portion

[18]The North Carolina Court reached the same conclusion regarding the definition of resistance, however, the North Carolina Court reached a different conclusion regarding the definition of "normally toxic levels of glyphosate." However, this Court notes that the North Carolina Court relied on Webster's dictionary definition of the term toxic. *Pl. DeKalb's Opening Claim Construction Brief*, Ex. 3, 49. Using such definitions is cautioned against by the Federal Circuit in *Phillips*. 415 F.3d at 1321 ("The main problem with elevating the dictionary to such prominence is that it focuses the inquiry on the abstract meaning of words rather than on the meaning of claim terms within the context of the patent.").

of the prosecution history cited above will again be restated with emphasis supplied by this Court to different language in the Examiner's conclusions. The Patent examiner states in the parties joint stipulation:

> The specification does not clearly evidence the effects of the expression of EPSP synthase in transgenic corn plants in the absence of the Spencer declaration, the original filed in parent application 07/508,045, of the instant continuation application. Applicants attorney submitted said declaration for review in this interview. The declaration clearly evidences that a person of ordinary skill in the art, employing the methods discussed in the specification, would have obtained a transgenic corn plant expressing EPSP synthase at levels sufficient to obtain resistance or partial resistance to glyphosate *at levels that would normally kill corn. . ..*

United States Patent 5,554,798, Pros. Hist. Joint Submission, 6372 (emphasis added). This language supports Syngenta's proposed construction. DeKalb attorneys represented to the patent examiner that a fertile transgenic corn plant with the EPSP gene would obtain resistance or partial resistance to glyphosate at levels that would normally kill corn.

The Court emphasizes that the purpose of the patent, as articulated in the introduction of the specification, is to create transgenic corn, which can then be bred with existing corn lines, to create a desired characteristic, in this case resistance to glyphosate. The Court notes that while even partial resistance would be beneficial, such resistance would not be beneficial if the levels at which the glyphosate were applied were so low that the glyphosate would not effectively kill the weeds, without killing the corn, as glyphosate's function is as a weed-killer. This Court does not find, and nor does Syngenta argue, that the words, "normally toxic levels of glyphosate" must be at a commercial level, because the Federal Circuit cautions against trial judges making claim construction determinations on the basis of the commercial embodiment of the invention. *ACS Hosp. Systems Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1578 (Fed. Cir. 1984) (Finding error by

the District Court in comparing the accused device with the commercial embodiment of the patent, rather than to the claims of the patent); *see also Unique Functional Products, Inc. v. Mastercraft Boat Co., Inc.*, 82 Fed.Appx. 683, 689 (Fed. Cir. 2003) ("It is of no consequence that those extraneous features are present in [Plaintiff's] commercial embodiment."). However, the court believes that the language in the specification supports Syngenta's argument and the Court's conclusion, that the level of glypohsate applied must be at levels sufficient to kill non-transformed corn.

Syngenta further submits extrinsic evidence, in the form of expert testimony on the ordinary meaning of "normally toxic levels of glyphosate," however, it is unnecessary for the Court to look to extrinsic evidence. The intrinsic evidence, which includes the prosecution history, supports Syngenta's proposed construction. Contrary to DeKalb's argument, the definition of resistance, as including partial resistance, does not necessitate that the term "normally toxic levels of glyphosate" be defined as something less than a lethal dose.

IV. CONCLUSION

The Court concludes that the disputed terms have the following meaning:

1. "Fertile transgenic *Zea mays* plant" in claim 1 means a corn plant that is transgenic, because it includes DNA that was introduced into the plant or one of its ancestors through genetic engineering and fertile because it can pass that introduced DNA on to its offspring.
2. "Heterologous DNA construct encoding EPSP synthase, in Claim 1 means DNA that is not normally found in the plant, but parts of the heterologous DNA conduct may be identical to DNA sequences originally present in the corn plant and that has

the necessary components to produce EPSP synthase.

3. "EPSP Synthase" in Claim 1 means EPSPS enzyme which can be natural or mutated or from any source.

4. "Said DNA construct is expressed so that the plant exhibits resistance to normally toxic levels of glyphosate, wherein said resistance is not present in a *Zea Mays* plant not containing said DNA construct" in Claim 1 means as a result of the expression of the heterologous DNA construct, the corn plant is less harmed than the non-transgenic version of the plant would be when glypohsate is applied to it at a concentration that will typically kill a non-transgenic corn plant of the same variety growing under similar conditions.

5. "Said DNA construct is transmitted through a complete normal sexual cycle of the transgenic plant to the progeny generation," in Claim 1 means that the fertile transgenic plant is capable of passing the EPSPS gene to offspring through either pollen or egg cells, with or without human intervention.

6. "Promoter" in Claim 2 means a DNA sequence that tells the cell to start a process that results in the production of the EPSP synthase.

7. "Transgenic Plant of Claim 1" in Claim 3 means the fertile transgenic *Zea mays* plant recited in claim 1 as defined above.

8. "Seed produced by the transgenic plant of claim 1" in claim 3 means all succeeding generations of seeds of the plant of Claim 1.

9. "A progeny transgenic *Zea mays* plant derived from the transgenic plant of claim 1" in claim 4 means all succeeding generations of progeny of the plants of claim 1.

10. "Said glypohsate tolerance" in Claim 4 means the same thing as "resistance to normally toxic levels of glypohsate defined above.

11. "A seed derived from the progeny plant of claim 4" in Claim 5 means all succeeding generations of seeds of the plant of Claim 4.

12. Claim 6 is a product by process claim which uses the term "comprising." Comprising means including but not limited to the steps listed.

Any future motions, or trial on this matter, shall be decided based on the above constructions.

Accordingly,

IT IS HEREBY ORDERED that all terms at issue be defined as articulated above.

Dated this 21st Day of December, 2007.

E. RICHARD WEBBER
UNITED STATES DISTRICT JUDGE